

D.I. 265

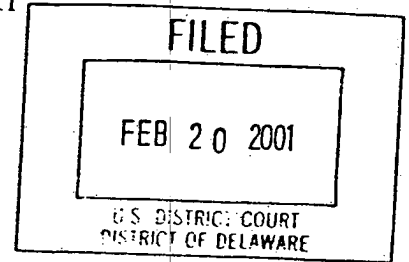
IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWAREHONEYWELL INTERNATIONAL INC.,)
and HONEYWELL INTELLECTUAL)
PROPERTY INC.,)

Plaintiff,)

v.)

HAMILTON SUNDSTRAND)
CORPORATION,)

Defendant.)



Civil Action No. 99-309 GMS

JUDGMENT

This action came before the Court for a trial by jury. The issues have been tried and the jury rendered its verdict on February 16, 2001. The verdict was accompanied by a special verdict form, a copy of which is attached hereto. Therefore,

IT IS ORDERED AND ADJUDGED that judgment be and is hereby entered in favor of plaintiffs HONEYWELL INTERNATIONAL INC., and HONEYWELL INTELLECTUAL PROPERTY INC., and against defendant HAMILTON SUNDSTRAND CORPORATION, in the amount of FORTY-FIVE MILLION (\$45,000,000.00) DOLLARS in price erosion damages and ONE MILLION FIVE-HUNDRED SEVENTY-EIGHT THOUSAND AND SIXTY-FIVE (\$1,578,065.00) DOLLARS in reasonable royalty damages.

2/20/01
DatedA handwritten signature in black ink, appearing to be "A. J. ...".
UNITED STATES DISTRICT JUDGE

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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

HONEYWELL INTERNATIONAL INC., and
HONEYWELL INTELLECTUAL PROPERTY INC.,

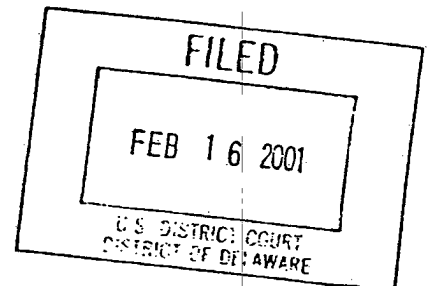
Plaintiffs,

v.

HAMILTON SUNDSTRAND CORPORATION,

Defendant.

Case No. 99-309 (GMS)



SPECIAL VERDICT FORM

We, the jury, unanimously find as follows:

Infringement of U.S. Patent No. 4,428,194 ("the '194 Patent")

1. Has Honeywell shown, by a preponderance of the evidence, that Hamilton Sundstrand's APS 3200 product literally infringes Claim 4 of the '194 Patent?
Yes _____ (for Honeywell) No ☒ (for Hamilton Sundstrand)
2. Has Honeywell shown, by a preponderance of the evidence, that Hamilton Sundstrand's APS 3200 product infringes Claim 4 of the '194 Patent under the doctrine of equivalents?
Yes ☒ (for Honeywell) No _____ (for Hamilton Sundstrand)

Infringement of U.S. Patent No. 4,380,893 ("the '893 Patent")

3. Has Honeywell shown, by a preponderance of the evidence, that Hamilton Sundstrand's APS 3200 product infringes any of the following claims of the '893 Patent under the doctrine of equivalents?

Claim 8:	Yes <input checked="" type="checkbox"/> (for Honeywell)	No <input type="checkbox"/> (for Hamilton Sundstrand)
Claim 10:	Yes <input checked="" type="checkbox"/> (for Honeywell)	No <input type="checkbox"/> (for Hamilton Sundstrand)
Claim 11:	Yes <input checked="" type="checkbox"/> (for Honeywell)	No <input type="checkbox"/> (for Hamilton Sundstrand)
Claim 19:	Yes <input checked="" type="checkbox"/> (for Honeywell)	No <input type="checkbox"/> (for Hamilton Sundstrand)
Claim 23:	Yes <input checked="" type="checkbox"/> (for Honeywell)	No <input type="checkbox"/> (for Hamilton Sundstrand)

If you answered any portion of Questions 1, 2, or 3 "YES," please go to question 4. Otherwise, do not go further, sign this verdict form, and advise the Court Deputy that you have reached a verdict.

Validity

Anticipation

4. Has Hamilton Sundstrand shown, by clear and convincing evidence, that any of the following claims were anticipated by any single prior art reference?

'194 Patent

Claim 4: Yes ☐ (for Hamilton Sundstrand) No ☒ (for Honeywell)

'893 Patent

Claim 8:	Yes <input type="checkbox"/> (for Hamilton Sundstrand)	No <input checked="" type="checkbox"/> (for Honeywell)
Claim 10:	Yes <input type="checkbox"/> (for Hamilton Sundstrand)	No <input checked="" type="checkbox"/> (for Honeywell)
Claim 11:	Yes <input type="checkbox"/> (for Hamilton Sundstrand)	No <input checked="" type="checkbox"/> (for Honeywell)
Claim 19:	Yes <input type="checkbox"/> (for Hamilton Sundstrand)	No <input checked="" type="checkbox"/> (for Honeywell)
Claim 23:	Yes <input type="checkbox"/> (for Hamilton Sundstrand)	No <input checked="" type="checkbox"/> (for Honeywell)

Obviousness

5. Has Hamilton Sundstrand shown, by clear and convincing evidence, that any of the following claims is invalid for obviousness based on one or more combination of references?

'194 Patent

Claim 4: Yes _____ (for Hamilton Sundstrand) No ☒ (for Honeywell)

'893 Patent

Claim 8: Yes _____ (for Hamilton Sundstrand) No ☒ (for Honeywell)

Claim 10: Yes _____ (for Hamilton Sundstrand) No ☒ (for Honeywell)

Claim 11: Yes _____ (for Hamilton Sundstrand) No ☒ (for Honeywell)

Claim 19: Yes _____ (for Hamilton Sundstrand) No ☒ (for Honeywell)

Claim 23: Yes _____ (for Hamilton Sundstrand) No ☒ (for Honeywell)

"On Sale" Bar

6. Has Hamilton Sundstrand shown, by clear and convincing evidence, that each of Claim 4 of the '194 Patent and Claims 8, 10, 11, 19, and 23 of the '893 Patent are invalid because of the "on-sale" bar?

Yes _____ (for Hamilton Sundstrand) No ☒ (for Honeywell)

If you found a claim infringed (i.e., answered "YES") in Questions 1, 2, or 3 and found that claim valid (i.e., answered "NO") in Questions 4, 5 and 6, please go to Question 7. Otherwise, do not go further, sign this verdict form, and advise the Court Deputy that you have reached a verdict.

Willful Infringement

7. Has Honeywell shown, by clear and convincing evidence, that Hamilton Sundstrand infringed at least one of the asserted claims willfully?

Yes ✓ (for Honeywell) No (for Hamilton Sundstrand)

Damages

8. What amount of price erosion damages, if any, do you find Honeywell has proven by a preponderance of the evidence?

Amount: \$ 45,000,000

9. What amount of reasonable royalty damages do you find Honeywell has proven by a preponderance of the evidence?

Amount: \$ 1,578,065

10. What rate do you find to be a reasonable royalty?

Rate: 7.5 %

You each must sign this Verdict Form:

Dated: 2/16/01

Elizabeth M. Spalluto (Foreperson)
Erica M. Torres
Phyllis M. Flynn
[Signature]
Louis H. Jackson
Dorothy H. Ekensie
Shirley Hall
[Signature]

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**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

HONEYWELL INTERNATIONAL INC., and)
HONEYWELL INTELLECTUAL PROPERTIES,)
INC.,)

Plaintiffs,)

v.)

Case No. 99-309-GMS

HAMILTON SUNDSTRAND)
CORPORATION,)

Defendant.)

**HAMILTON SUNDSTRAND'S BRIEF IN SUPPORT OF ITS MOTIONS FOR
JUDGMENT AS A MATTER OF LAW AND FOR A NEW TRIAL ON ISSUES
PERTAINING TO LIABILITY**

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DATE: April 6, 2001

203-CMW, 1992 WL 162958, at *1 (D. Del. June 19, 1992). Because the trial dealt with complex subject matter, the verdict “should be scrutinized more closely by the trial judge than is necessary where the litigation deals with material which is familiar and simple.” Lind v. Schenley Indus., Inc., 278 F.2d 79, 90-91 (3d Cir. 1960).

ARGUMENT

POINT I

THERE IS NO LEGALLY SUFFICIENT EVIDENTIARY BASIS FOR THE JURY’S FINDING OF INFRINGEMENT BASED UPON THE DOCTRINE OF EQUIVALENTS, AND THEREFORE HAMILTON SUNDSTRAND IS ENTITLED TO JUDGMENT AS A MATTER OF LAW

The jury’s finding of infringement under the doctrine of equivalents is precisely the kind of result the Supreme Court and Federal Circuit have urged the district courts to guard against when patent cases are tried to juries: it is a finding of equivalence that depends on disregarding the specifics of what the patent claims require and how the accused product works.

The differences between the Honeywell patents and the APS 3200 are real and substantial. The surge control system claimed by the patents adjusts the flow rate to be maintained based on the position of the inlet guide vanes. The APS 3200 makes this adjustment based on air temperature instead. This is undisputed.

The APS 3200’s only use of inlet guide vane position is to deal with a problem unique to the unconventional parameter the APS 3200 uses to measure the movement of air through the compressor. Because this parameter can produce a “false” signal at extremely high flow rates, indicating a low flow rate when in fact the flow rate is very high, the APS 3200 has a test that blocks out the normal control system in those circumstances. This test uses inlet guide vane position solely to help determine when the normal controls should be blocked out. This is also undisputed. The problem this test in the APS 3200 was designed to address, the way it

19(c). The error signal is supplied to the controller, and its magnitude determines the magnitude of the proportional and integral control signals, which then operate the bleed valve to control the rate of air flow through the compressor. Claim 8(g); Claim 19(d)-(f).

Inlet guide vane position is used to adjust the set point of the comparator, which determines the rate of air flow through the compressor. Element (f) of claim 8 describes this in terms of “transmitting to said comparator means a reset signal for varying said set point as a function of the position of said inlet guide vanes.” Element (g) of claim 19 calls for “a guide vane position sensor and a function generator coupled in series between the inlet guide vanes and said input portion of said comparator.” As the specification explains, the “function generator” referred to in claim 19 receives as an input a signal representing the position of the inlet guide vanes and generates a signal that adjusts the set point value of the flow-related parameter. See ‘893 Patent, col. 6, lines 38-49; col. 7, lines 3-23. This is illustrated by box 104 in Figure 4. See id. and Fig. 4.

2. The APS 3200 Surge Control Logic

(a) The Static Pressure Parameter

The APS 3200’s surge control system uses a unique parameter measurement that eliminates the need to adjust the set point as a function of the position of the inlet guide vanes. Tr. 1356-57 (testimony of Hamilton Sundstrand expert Francis G. Shinskey). This parameter – called “DELPQP” and referred to as the “Static Pressure Parameter” because it uses only static pressures – measures the rise in pressure across the compressor’s diffuser, a set of stationary vanes that takes air from the impeller blades and increases its pressure. Id. The Static Pressure Parameter thus reflects a combination of the rise in pressure across the diffuser and the discharge pressure, which accounts for the fact that the APS 3200 does not need to adjust its set point as a function of inlet guide vane position. Id.

While the value of the Static Pressure Parameter at which surge would occur does not change with inlet guide vane position, it does change with temperature. Tr. 1414-16.

Accordingly, the APS 3200 adjusts its set point based on air temperature. Id., see also Tr. 1342-56, 1378-82). Hence, the role performed by inlet guide vane position in the Honeywell patent claims is instead performed by air temperature in the APS 3200. Tr. 1378-82, 1342-56, 1414-16, 1420-22, 1424-25 (Shinskey); see also Tr. 740:1-16 (Honeywell expert Gerard Muller).

(b) The APS 3200's Control Logic For Dealing With The "Double Solution" Behavior Of The Static Pressure Parameter

The only use the APS 3200 makes of inlet guide vane position is as part of a control logic for dealing with a problem unique to the Static Pressure Parameter. The value of the Static Pressure Parameter initially rises as flow through the compressor increases, but it eventually peaks and thereafter actually decreases even though flow is continuing to increase. Tr. 1356-60 (Shinskey). Thus, a plot showing the value of the Static Pressure Parameter on the vertical axis and the rate of air flow on the horizontal axis looks like an inverted "V". See Defendant's Trial Exhibit ("DTX") 27-c at 4-5.

For a range of values of the Static Pressure Parameter, there is a "double solution" – two different values of air flow, one on each side of the peak in the curve. There would be a risk of surge only if the flow in the compressor was on the left side of the peak and below the set point value of the Static Pressure Parameter. If the value of the Static Pressure Parameter were to go below the set point while the APS 3200 is actually operating on the right side of the curve, it would be a mistake to open the surge valve, because there would be ample flow and no risk of surge. Thus, a method was believed to be needed to ensure that the surge valve is not opened to exhaust air unnecessarily in those circumstances. Tr. 1362-66, 1382-83 (Shinskey).

The control logic developed to address this need defines two modes for the APS 3200's surge control system: "low flow" and "high flow." In low flow mode, the surge valve is

actively controlled by the closed-loop surge control system, which does not use inlet guide vane position as an input. In high flow mode, this active control loop is locked out, and the surge value is maintained in the position of fully closed to exhaust. The “high flow logic” that determines whether the system is in low flow or high flow mode uses two tests. The only test that includes inlet guide vane position is a complex formula, using temperature, inlet guide vane position and two pressure measurements as inputs, that determines when the value of the Static Pressure Parameter is to the right of the peak in the double solution curve. Tr. 1360-69, 1382-85 (Shinskey).

A determination that the system is in high flow mode does not affect the magnitude of the proportional and integral control signals generated by the active control loop. Tr. 1388-95, 1398-1400 (Shinskey). It simply throws a switch that disconnects the proportional and integral control signals from the bleed valve and supplies instead a fixed signal that keeps the valve closed to exhaust. Id., DTX 26 at 130.

B. Honeywell’s Equivalence Argument

At trial, Honeywell attempted to demonstrate through the function-way-result test that the high flow logic of the APS 3200 satisfied by equivalence the limitations in Honeywell’s patent claims that require a particular use of inlet guide vane position, claims 8(f) and 19(g) of the ‘893 patent and claim 4(d) of the ‘194 patent. But, as discussed in detail below, the testimony presented on this issue by Honeywell’s expert, Gerard Muller, was legally insufficient to establish equivalence. For two of the three independent claims at issue, Mr. Muller did not even identify a full set of “functions,” “ways” and “results” for the patent claims and the APS 3200, and so by definition he failed to demonstrate the required match on each count. See Tr. 669-70, 693-94. In several other instances, when asked to identify the function, way or result of the claim limitation of Honeywell’s patents, Mr. Muller incorrectly described the APS 3200 instead. Tr. 667:24-668:21, 693:18-694:21.

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HONEYWELL INTELLECTUAL)
PROPERTIES INC.,)**

Plaintiffs,

v.

**HAMILTON SUNDSTRAND)
CORPORATION,)**

Defendant.)

Civil Action No. 99-309-GMS

**HAMILTON SUNDSTRAND'S BRIEF IN OPPOSITION
TO HONEYWELL'S RULE 50 MOTIONS FOR JUDGMENT AS A MATTER OF LAW**

May 7, 2001

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simultaneously. Honeywell's argument that this remark was Hamilton Sundstrand's only proof that Claim 4 is not infringed is flatly wrong.

II. The APS 3200 Also Lacks The "Flow-Related Parameter" Specified By Claim 4

In addition to proving that the APS 3200 does not satisfy element (d) of Claim 4, Hamilton Sundstrand also showed that the 3200's Static Pressure Parameter does not satisfy element (c)'s requirement of measuring a "flow-related parameter" in the supply duct between the compressor and the apparatus that uses the compressed air. Honeywell's brief contends that evidence that the Static Pressure Parameter provides an indication of flow conclusively establishes that the Static Pressure Parameter is exactly the same as the "flow related parameter" specified in Claim 4. But Mr. Shinskey explained that in terms of its measurement, composition, and behavior, the Static Pressure Parameter is different from what one skilled in the art would consider a "flow-related parameter."

Mr. Shinskey testified that, as a matter of measurement, the Static Pressure Parameter does not measure total pressure and does not use a "flow meter" in the supply duct at all, but rather measures only the change in static pressure across the compressor's diffuser, a set of blades that converts the velocity of the compressed air into pressure rise. Tr. 1356:8-1358:18. As a matter of composition, the Static Pressure Parameter produces a value that is a combination of the rise in pressure across the diffuser (the "compression ratio") and flow. Tr. 1356:8-1358:18; 1405:23-1407:15, 1696:12-1698:1. As a matter of behavior, when flow through the compressor reaches high levels, the value of the Static Pressure Parameter does not track flow but rather decreases as flow increases. Tr. 1356:8-1358:18. In addition, unlike a conventional flow-related parameter, the value of the Static Pressure Parameter at which surge will occur does not change with inlet guide vane

position. Tr. 1356:21-1357:4; 1406:24-1407:15.

Even Honeywell's expert Gerard Muller conceded that the way the Static Pressure Parameter is measured is "special" and that its behavior is "funny." Referring to the Static Pressure Parameter's double solution curve, Mr. Muller stated that it "is really this peaky curve which is generated with [the] APS 3200 only because it measures – it measures flow in a special way which is special to the [APS] 3200, not the only way. It's just the way that's done there generating this funny looking curve. Tr. 753:17-22 (emphasis supplied); see also Tr. 753:24 (referring to the "odd curve" created by the Static Pressure Parameter).

The evidence Honeywell's brief points to shows only that flow is one component of the Static Pressure Parameter and that its value therefore can be used as an indication of flow. Honeywell Br. at 10. But the flow component of the Static Pressure Parameter cannot be divorced from the compression ratio component. As Mr. Shinskey explained in testimony just preceding what Honeywell quotes in its brief, "The DELPQP parameter is a composite parameter that is related to both flow and compression ratio." Tr. 1583:15-17 (emphasis supplied); see also Tr. 1406:22-23 ("It has a very strong component of compression ratio in its output."). And as the evidence demonstrated, the Static Pressure Parameter's measurement, composition and behavior are different from what an engineer of ordinary skill in the field would recognize as a "flow-related parameter."

Therefore, while the proof that the APS 3200 does not satisfy element (d) of Claim 4 already suffices to defeat Honeywell's JMOL motion, this showing that the Static Pressure Parameter does not match the "flow-related parameter" specified in element (c) provides an additional basis for denying the motion.¹⁶

¹⁶ In addition to its demand for JMOL on literal infringement, Honeywell makes a half-hearted argument, "[f]or the record," that it is entitled as a matter of law to "\$71,007,251" in price erosion damages (presumably a typographical error because Honeywell sought \$71,057,251 at trial), and to a royalty rate of